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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,311	04/09/2007	**Rudolf Neumann**	1886/76635/NHZ	3362

7590 07/11/2008

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EXAMINER	
ADDISON, KAREN B	
ART UNIT	PAPER NUMBER
2834	

MAIL DATE	DELIVERY MODE
07/11/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,311	NEUMANN, RUDOLF	
	Examiner	Art Unit	
	KAREN B. ADDISON	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/26/06* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because figs.1, 2a-2C are not clearly shown. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 11-14 rejected under 35 U.S.C. 102(b) as being anticipated by Hu(Optimum Operation Condition of an Ultrasonic Motor Driving Fluid Directly, Journal of Applied Physics, vol,35, pp 3289-3294. May 1996).

Hu discloses a piezoelectric drive unit in fig. 1-12 comprising: a stator (fig.1), a rotor(fig.1) rotatable about a rotational axis with respect to the stator (cylinder) and drive elements (taking the form of several piezoelectric actuators) (fig.1-3). Hu also disclose, an annular gap filed with a fluid medium that is form between the facing surfaces of the stator and the rotor (rotor). Wherein, the plurality of piezoelectric actuators fig.2 (PZT

ring) are arranged adjacent to the gap and the electrical activation according to the predetermine scheme or a predetermined function, undergo an essentially radial change in length in the direction of the gap, such that the mechanical energy provided by the actuators is transmitted to the fluid medium (fig. fluid) as flow energy. Wherein, the flow energy of the fluid medium is transmitted to the rotor and transformed into a rotating drive movement of the rotor characterized in that the rotor is supported in a stator using a hydrodynamic bearing system(fig.1 section 2), wherein the gap forms part of the gap of the hydrodynamic bearing system. Hu also discloses, the piezoelectric actuators disposed along the circumference of the gap and the stator has a collar that acts as a resonator and forms the outer limit of the gap. Wherein, the piezo-ceramic ring comprise several piezoelectric actuators arranged at the outside circumference of the collar disposed on one plane in segmented form. Hu also disclose, part of the rotor having rib-shaped projections distributed over its circumference which face the gap and circulate with the fluid medium (pp. 3289—3294).

In regards to claim 11-14

Hu also disclose, a method for generating a rotating drive movement for a drive unit(fig. 1-12). comprising a stator(fig.1 cylinder) and a rotor(rotor). Wherein, a plurality of piezoelectric actuators are used as drive elements, and the mechanical energy provided by the piezoelectric actuators is transformed(fig.1 PZT ring) into flow energy (hydrodynamic energy) for the fluid medium , and the flow energy of the fluid medium is transmitted to the rotor and transformed into a rotating drive movement of the rotor. Characterized in that, the flow energy is generated within the bearing gap that, together with the bearing gap, forms a part of the hydrodynamic bearing system and that hydrodynamic pressure is built up in the bearing gap through the rotation of the rotor, thus giving the bearing its load-carrying capacity(3289-3294). Wherein, the fluid medium is accommodated in the substantially annular gap and the piezoelectric actuators are arranged and activated such that they generate a defined, directed flow of the fluid medium(fig.3) within the gap and the rotor is set into rotation by the flow. Hu also disclose, actuators on the annular resonator excited by the vibration such that a traveling wave is formed and the mechanical energy is transmitted to flow energy to the

fluid medium found in the gap (section 2). Wherein, the flow in the gap is directed transversely to the rotational axis of the drive unit and the piezoelectric actuators are electrically activated according to a predetermine scheme. Hu also disclose, the piezoelectric actuators located opposite each other with respect to the rotational axis and are driven in pairs (3289-3294).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu in view of Shibata (64-008879).

Hu substantially discloses the claim invention, However Shibata does not disclose, the drive unit designed as a spindle motor.

Shibata disclose a piezoelectric drive unit characterize as a spindle motor having a stator(1) and a rotor(5) rotatable about a rotational axis with respect to the stator and drive elements taking the form of several piezoelectric actuators(2,3), an annular gap filed with a fluid(7) medium that is form between the facing surfaces of the stator and the rotor for the purpose of converting the flow of piezoelectric energy to produce a traveling wave so as to move the liquid unilaterally, therefore, it would have been obvious to on having ordinary skill in the art at the time the invention was made to

modify the drive unit of Hu with the spindle motor of Sanyo for the purpose of producing a traveling wave so as to move the liquid unilaterally.

In regards to the claim 10

It has been held that the recitation with respect to the manner in which a claim apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham,2 USPQ2d 1647(1987).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAREN B. ADDISON whose telephone number is (571)272-2017. The examiner can normally be reached on 8:00 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas M. Dougherty/
Primary Examiner, Art Unit 2834

/KBA/
7/3/08